

the position in the beam laterally with respect to a direction of propagation of the beam during detection.

In The Claims

Please amend the claims as follows:

1. (Amended) A method of determination of at least one optical parameter of an optical signal, comprising:

manipulating a beam of the optical signal, the manipulation having polarization properties, the properties being dependent of the position in the beam laterally with respect to a direction of propagation of the beam during manipulation, wherein the beam is manipulated by:

retarding the beam, the retardation being dependent of the position in the beam laterally with respect to a direction of propagation of the beam during retardation, and

polarizing the beam using a known polarization;

detecting intensities in at least three parts of the beam in their dependency of the position in the beam laterally with respect to a direction of propagation of the beam during detection, and

evaluating the optical parameter on the basis of the detected intensities.

2. (Amended) The method of claim 1, wherein the manipulation comprises the manipulation of the power transmission of at least a part of the beam, the manipulation of the power transmission being dependent of the position in the beam laterally with respect to a direction of propagation of the beam during manipulation of the power transmission, and being dependent of the polarization of said part of the beam.

3. (Amended) The method of claim 1, further comprising:

providing the beam with a known wavelength, and

evaluating as an optical parameter the state of polarization of the signal.

4. (Amended) The method of claim 1, further comprising:

providing the beam with a known state of polarization, and

evaluating as an optical parameter the wavelength of the signal.

5. (Amended) The method of claim 1, further comprising:

splitting the beam in a first and at least a second beam,

providing the first beam with a known first polarization before manipulating,

providing the second beam with a known second polarization before manipulating,

detecting the intensity of the first beam in its dependence on the position in the first beam laterally with respect to a direction of propagation of the first beam during detection,

detecting the intensity of the second beam in its dependence on the position in the second beam laterally with respect to a direction of propagation of the second beam during detection, and

evaluating as an optical parameter the wavelength of the beam.

6. (Amended) The method of claim 1, further comprising the steps of evaluating the optical parameter by:

describing the effect of the manipulation step with the help of a matrix,

inverting the matrix, and

multiplying the detected intensities with the inverted matrix to get the Stokes parameters for the optical signal.

7. (Amended) The method of claim 1, wherein the dependence of the properties of the manipulation from the position in the beam is sufficient to

make the matrix invertible.

8. (Amended) The method of claim 1, wherein the detection is a detection of four different parts of the beam.

9. (Amended) The method of claim 1, further comprising:

splitting the beam in a first, a second and a third beam,

providing the first beam with a known first polarization before manipulation,

providing the second beam with a known second polarization before manipulation,

detecting the intensity of the first beam in its dependence on the position in the first beam laterally with respect to a direction of propagation of the first beam during detection,

detecting the intensity of the second beam in its dependence on the position in the beam laterally with respect to a direction of propagation of the second beam during detection,

detecting the intensity of the third beam in its dependence on the position in the beam laterally with respect to a direction of propagation of the third beam during detection,

evaluating as an optical parameter the wavelength of the beam on the basis of the detected intensities of the first and the second beam, and

evaluating as an optical parameter the state of polarization of the beam on the basis of the detected intensity of the third beam.

10. (Amended) A software program, stored on a data carrier, for executing a method for determining at least one optical parameter of an optical signal, when run on a data processing system, said method comprising:

manipulating a beam of the optical signal, the manipulation having polarization properties, the properties being dependent of the position in the beam laterally

with respect to a direction of propagation of the beam during manipulation,
wherein the beam is manipulated by:

retarding the beam, the retardation being dependent of the position in
the beam laterally with respect to a direction of propagation of the beam
during retardation, and

polarizing the beam using a known polarization;

detecting intensities in at least three parts of the beam in their dependency of
the position in the beam laterally with respect to a direction of propagation of
the beam during detection, and

evaluating the optical parameter on the basis of the detected intensities.

11. (Amended) An apparatus for determination of at least one optical
parameter of an optical signal, comprising:

an element in a path of a beam of the optical signal for manipulating the beam,
the manipulation having polarization properties, the properties being dependent
on the position in the beam laterally with respect to a direction of propagation of
the beam during the manipulation,

a detector element in the path for detecting the intensities in at least three parts
of the beam in their dependency on the position in the beam laterally with
respect to a direction of propagation of the beam during detection, and

an evaluating unit connected to the detector element for evaluating the optical
parameter on the basis of the detected intensities,

wherein the element further comprises:

at least one retardation element in the path, the retardation of the retardation
element being a function of the position in the beam laterally with respect to a
direction of propagation of the beam during retardation, and

at least one polarization element in the path with a known polarization effect on

the signal.

15. (Amended) The apparatus of claim 11, further comprising:

a first beam splitter in the path between the light source and the element for providing a first beam traveling a first path and a second beam traveling a second path,

a first polarization element in the first path for providing the first beam with a known polarization, and

a second polarization element in the second path for providing the second beam with a known second polarization,

wherein the detector element is in the path of the first and of the second polarized beam for detecting the intensity of the beam in its dependency of the position in the beams laterally with respect to a direction of propagation of the beams during detection.

16. (Amended) The apparatus of claim 11, further comprising:

a first and a second beam splitter in the path between the light source and the element for splitting the beam in a first beam traveling a first path, a second beam traveling a second path and a third beam traveling a third path,

a first polarization element in the first path for providing the first beam with a known first polarization, and

a second polarization element in the second path for providing the second beam with a known second polarization,

wherein the detector element is in the paths of the first, the second and the third beam for detecting the intensities of the beams in their dependency of the position in the respective beam laterally with respect to a direction of propagation of the respective beam during detection,

and wherein the evaluating unit evaluates, as an optical parameter, the

wavelength of the beam on the basis of the detected intensities of the first and the second beam and evaluates the state of polarization of the beam on the basis of the detected intensities of the third beam.

19. (Amended) The element of claim 17, wherein the sub-elements comprises retardation sub-elements for retardation of the optical signal.

21. (Amended) The apparatus of 11, wherein the element comprises at least two sub-elements, each having at least one body axis, each of these sub-elements having a variation in a manipulation property along its axis and these axes have some angle with respect to each other.